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VITALIZED TEACHING

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VITALIZED TEACHING

BY

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EDITOR'S INTRODUCTION

THE school is an artifice. It has been invented or evolved to perform a particular social task which no other social institution can perform — neither home nor church nor industry. It may share some of the qualities and functions of each of these and other social organizations, but it has a dominant purpose, structure, and procedure all its own. This is a truth which is not always remembered. It deserves constant recall when one is considering the worth of various proposals for educational reform.

In calling attention to the specialized nature of the obligations carried by the school, I have not now in mind those ardent lay reformers who would have the school take over the primary duties of other social institutions which, for the time being, manifest a limping effectiveness. It can be shown readily enough that a proper program of civilization does not sanction either that thoughtless despair which would abandon the home, the church, and industry to a continuous deterioration or that destructive faith which would wreck the school by overloading it with so-

cial services it is not built to perform. I have in mind the professional reformer who is now trying to naturalize or vitalize the teaching and learning methods of the public schools.

If the school is a social artifice — and there are no historical grounds to believe otherwise — the constant danger is that the school will become more artificial than artful. Impelled by the wholesome impulse to escape artificiality, the professional reformer often falls into fallacious ways of reform. In attempting to get away from a formal academic environment, he tries to reproduce the realism of the outer world *in toto*, or exhausts ingenuity and dissipates time, energy, and opportunity by trying to teach too much through recurring excursions into the world of adult affairs. Again, in attempting to diminish verbalism in children's responses, he often descends too completely into an instinctive naturalism which calls for expressions and actions that may have been outlived by the pupils. There are many modes of feeling, thinking, and acting which may seem too childish even to children. These modes are below the children's level of growth. To keep pupils there is to degrade them psychologically, for they may be ready for higher and more refined means of self-expression.

EDITOR'S INTRODUCTION

It is unquestionably true that the schools are too artificial. There is too great an absence of real things. There is too much demand that children and youth shall respond on some plane far above their present powers, provoking them to simulate civilized adults in a meaningless way. Both of these defects must be overcome. But the avoidance of formalism should not direct us to pure realism, and the escape from verbalism should not lead us to tarry too long on that level of mere instinctive expression and action, which is pure naturalism. To be sure, the vitalized school begins with real and tangible situations which the youngest child perceives with his senses, and acts upon with his most natural impulses. But the process of education, rightly conceived, calls for an increasing mastery of a civilization which is only remotely derived from primitive materialism, and this mastery is to be achieved in the school, so far as it may be, through increasingly civilized personal responses. Hence the realism and naturalism, which are essential to the youngest child and to the strange phases of a new subject, may not adequately develop older children in subjects long pursued. It is for this reason that good teachers must be very artful if they are to escape both an artificiality

which is futile and a primitiveness which is retarding.

To aid in making teachers artful some analysis of the worth of current methods and devices, involving both the presentation of realities and the modes of responding to them, should be part of professional preparation. The author of this monograph on "vitalized teaching" has provided a carefully considered study. He has arranged in the order of their nearness to reality the means of "exhibiting subject-matter," and has given a sequence to methods of "enlisting the child's activity" which indicates their degrees of naturalness. Their relative worth has also been suggested in terms of other complicating factors in school life. The sane and wholesome teacher will welcome the contributive suggestions and the inhibiting cautions with which this volume is filled.

VITALIZED TEACHING

I

THE PROBLEM OF VERBALISM

1. Verbalism

THE most general fault of teaching the world over is the fault of *verbalism.* It has been maintained that less than fifty per cent of our teaching results in vital, realistic knowledge, and that more than fifty per cent ends in a relatively meaningless repetition of words. The fault is not confined to one continent, to one grade of school, or to one type of subject-matter. It is recognized in Europe as well as in America, it extends from the kindergarten to the university, and it infests content subjects like geography and history, no less than formal subjects like grammar and algebra. Every school survey report that has a chapter on instruction makes note of it, and all recent books on pedagogy suggest ways and means of overcoming it.

A striking instance of verbalism came to my attention while attending the meeting of the National Education Association in Boston in

1903. In common with many others, I spent a part of my time in sight-seeing. The board of managers had anticipated this and had arranged with the Boston high-school cadets to act as guides. In charge of one of these guides, about a dozen of us had one afternoon visited Old North Church, from whose steeple the sexton had displayed a lantern as a signal to Paul Revere, and we had walked across the old part of Boston, characterized by its crooked streets of colonial tradition, to the triangle where the houses of Paul Revere and Cotton Mather are still standing. In this walk we collected in our wake a group of children who were interested in us even more than in what they might learn. These children, always decorous as Boston children should be, were shy at first, but, by the time we arrived at the triangle of our quest and the guide was pointing out to us the houses of Paul Revere and Cotton Mather, one of the boys, a smiling, chubby-faced fellow of about thirteen, felt sufficiently at home to take a gentle hold of the badge I was wearing and say: "I know what that says." "Well, what does it say?" I answered. Evidently pleased with the opportunity to talk to a stranger, his face brightened as he said: "Wisconsin." "That's right," I replied, for I was wearing a

Wisconsin badge; "and where is Wisconsin?" I persisted. Now a puzzled and guilty expression came over his face and he hung his head as he embarrassedly confessed that he did not know. Considerably surprised, I said: "What! Haven't you studied geography?" This was a cue, and at once the former brightness returned to his face as he said: "Oh, you mean the Wisconsin in the jography; that's one of the forty-five States."

The Wisconsin in the geography he knew well enough, but the one on earth where people lived he had never got located.

A similar experience is reported by Quick on page 144 of his *Educational Reformers*. He says: "In an elementary school when the children 'took up' geography for the inspector, I once put some questions about St. Paul at Rome. I asked in what country Rome was, but nobody seemed to have heard of such a place. 'It's geography!' said I, and some twenty hands went up directly: their owners now answered quite readily, 'In Italy.'"

Another instance of like nature was reported to me a few years ago by a teacher from Coney Island, New York. Coney Island, as the reader knows, is situated on the Atlantic side of Long Island. On warm days it is the custom of the

older boys to come to school early and take a dip in the ocean before nine o'clock. On one of these mornings an inspector was present when school opened and started to examine the pupils in geography. Among the questions he asked were the following:

"What ocean is east of the United States?"

"The Atlantic Ocean."

"What continents border on the Atlantic Ocean?"

"North America, South America, Europe, and Africa."

"Have you ever seen the Atlantic Ocean?"

"No, sir."

"What! Has no one here ever seen the Atlantic Ocean?"

A puzzled expression, but no response; yet the hair of the boys was at that moment still wet from the Atlantic Ocean!

The climax to instances of this nature is recorded in the following words by Horace Mann: "It recently happened, in a school within my own knowledge, that a class of small scholars in geography, on being examined in respect to the natural divisions of the earth, its continents, oceans, islands, gulfs, etc., answered all the questions with admirable precision and promptness.

They were then asked, by a visitor, some general questions respecting their lesson, amongst others, whether they had ever seen the earth about which they had been reading; and they unanimously declared that they never had."[1]

A primary teacher in the Middle West had taught her young charges the story of Apollo. They were much interested and one of the girls told the story to her mother when she got home. "And where did Apollo live?" asked her mother. "Oh, in grease or lard," was the reply.

After we had been discussing this matter of realness in teaching in one of my college classes, one of the students, a public school teacher, stopped to say, somewhat shyly, that she had learned only two years before that Palestine was on the earth; she had always thought that it was in heaven.

All the instances mentioned so far are from geography, but that is not the only subject in which symbols and reality sometimes fail to get properly connected.

While on my way from Madison, Wisconsin, to Chicago, Illinois, in the fall of 1902 to root for the Wisconsin football team, my seatmate chanced to be a member of the freshman class. On pass-

[1] Quoted by Stevenson, *The Project Method*, p. 7.

ing through a field of corn in shock, this freshman surprised me by asking: "Say, what are those shocks out there; are they corn or potatoes?" Concealing my surprise, I said: "Why, they are potatoes. Don't you know potatoes when you see them growing?" "I thought they were, but I wasn't sure," was his reply. Then I told him the true answer, expressing surprise at his ignorance. He explained that he had never paid any attention to such things. Yet this young man was one of the brightest members of his class and was brought up in a small city where the people raise corn and potatoes in their back yards.

A girl from one of the larger high schools in Virginia was surprised to learn a year after graduation that the Cæsar of the Latin class, the Cæsar of the English class, and the Cæsar of the history class were one and the same person. To her they had been three different persons.

2. Causes of verbalism

It may readily be admitted that the instances of verbalism just given are extreme. Less extreme ones, however, may be observed by teachers almost daily. These, when noted at all, are passed over with a smile and no attempt is made

to fathom their significance. Yet these instances are symptoms of a deep-seated pedagogical weakness. They are indicative of an infirmity that is well worthy of a careful diagnosis in order that the cause or causes of it may be laid bare. On no other basis can we be sure of attacking this infirmity with intelligence.

It is frequently said that the cause of verbalism is the prominence of books in the schoolroom, but this is an inadequate explanation. It would be more correct to say that the cause is found in the fact that teachers face schoolward rather than lifeward. They lose sight of the relation that should exist between the exercises of the school and the realities of life, and as a result they teach words rather than the things and meanings for which these words stand. This contains much truth, but it also does not cover the case. Our analysis will show that verbalism in education is caused primarily by the following four factors:

(1) The isolation of the school.
(2) The symbolic nature of the curriculum.
(3) The passivity of the child.
(4) The limitations of the teacher.

With the progress of civilization an ever-widening gap has appeared between the child and the adult. The adult is equipped with a twofold

inheritance; the child with only one. The child comes into the world with only the biological equipment of unformed powers and impulses, while the adult has added to this the social inheritance of the race in the form of knowledge, ideals, and acts of skill. This social inheritance has become so vast, systematic, and technical that the informal processes of life have long ago ceased to be adequate for transmitting it, and the school has evolved to discharge the task. But, in order to do this, the school has had to be organized into an institution. Pupils, teachers, and equipment have to be housed within the four walls of a building. This, it is obvious, isolates the school from the very realities with which it should make the child vitally acquainted and exposes the processes of the school to verbalism. Yet this isolation is in a large measure unavoidable, for systematic education cannot be carried on effectively without it.

The symbolic nature of the curriculum is also in a large measure unavoidable. The backbone of the curriculum is found in books, whose very nature consists of a series of words and other symbols. When these are learned with little reference to the realities for which they stand, verbalism is the inevitable result. Yet books are

fundamental in preserving the achievements of the race. They are the treasure vaults of civilization, and to rule them out of the educational equation would be to remove the foundation of the school itself.

The passivity of the child in school is the direct outcome of the isolation of the school and the symbolic nature of subject-matter. Compare the active, romping, experimenting child of the outside world with the child poring over a book in school! Furthermore, the child in school is not dealt with as an individual having problems peculiar to himself, but mainly as a member of a group whose problems are set and alike for all. This again is largely unavoidable. Systematic knowledge, such as is demanded in modern life, requires systematic application; class instruction has both economic and pedagogical advantages over individual instruction; and membership in a class imposes a restraint upon the freedom of the individual that not only furthers the welfare of the class itself, but comprises a training in social living for the individual.

The limitations of the teacher are also in a large measure inherent. The teacher is a product of the routine of the schools and is often a person who takes an immediate delight in this routine.

What this routine means in terms of life he has had little chance to learn, for the road to teaching leads only through schools. Add to this the fact that, in elementary schools, at least, the teacher has to teach so many subjects that he has time to master none, and our picture is complete.

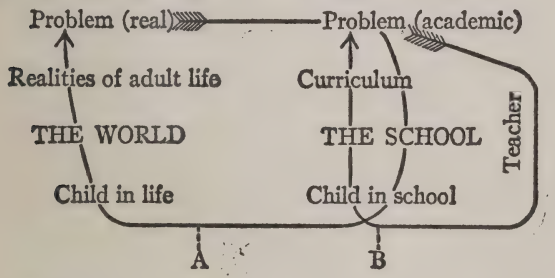
In addition to these four causes there are undoubtedly others that tend toward verbalism. Among these are the overcrowded nature of the curriculum and the dominance of the doctrine of formal discipline. But both of these may be removed. By wise selection and a more thoroughgoing integration, the curriculum may be both simplified and enriched, and our formal and subjective conceptions of the educational goal may be, and are being, displaced by contentful and objective conceptions.

In respect to the isolation of the school, the symbolic nature of the curriculum, the passivity of the child, and the limitations of the teacher, the point especially revealed by our analysis is that all these factors, while inherent in the very nature of the school, no less inherently expose the processes of the school to verbalism. The difficulty cannot be removed once for all. It can, however, be met and measurably overcome, but only through a continuous process that demands

the eternal vigilance of the teacher. It is to the principles underlying this process of vitalization that we now turn.

3. Overcoming verbalism

The relation of the school to life and the theory of keeping the two in connection may be symbolized by the following diagram:



On the left is represented the world with its concrete yet highly organized realities, and the active child in the midst of these realities. On the right is represented the school, which may be looked upon as a counterpart of the world outside. The realities of life in their theoretical and technical aspects give rise to the curriculum, the active child of life becomes the learning child in school, and in the school we have in addition the teacher, who is the conscious intermediary be-

tween the child and the curriculum. If, now, the circle of instruction moves primarily between the symbolic material of the curriculum and the child, as indicated by arrow B, the knowledge gained is almost bound to be verbalistic. Such instruction is academic merely, beginning and ending with the book. The text is learned and the text is recited, and it is not surprising that the symbols of the text often fail to connect with the realities that are symbolized.

Instruction, to be vital and effective, must move according to arrow A. The problem or topic that engages the attention of the pupil must be recognized as a problem or topic in life, and not merely one in the text; books and other aids must be drawn upon for the facts and principles required in the solution; and the spontaneous responses of the pupil must be enlisted in the process of mastery. Instruction of this nature, although carried on in school, begins and ends with reality, in point of reference, at least. It begins with a problem or topic that is real, passes through the curriculum for the needed facts and theory, and comes back through the active pupil to the topic in life resolved and understood. The teacher is present to prepare the situation, to insure its connection with reality, to direct the

activities of the pupil, and to supplement the text. Had our boy in Boston, mentioned on page 2, studied geography in this spirit, it is difficult to see how he could have failed to connect the Wisconsin of the geography with the Wisconsin of the earth. Geography on this basis becomes in truth a study of the earth as the home of man and the text becomes merely one of the means to that end.

This relation of the text to the subject of geography exemplifies the relation of the text to all content subjects. The text is a means, not an end. It occupies a position in the teaching process very similar to that of the guide-book in travel. Just as it is the function of the guide-book to interpret for the traveler the cathedrals of England, let us say, so it is the function of the textbook in botany, physics, or geology to interpret for the student the world of nature in which he lives. The analogy can be carried over also to the teacher as compared with the guide. The guide in travel centers his attention not on the guide-book, but on the realities referred to in the guide-book, and in the same way the teacher should center his attention primarily on the realities described and explained in the text and not upon the text itself.

This guide-book function of the text is easily seen in the sciences, both natural and social, where the things described and explained are open to direct observation, but in essence it holds also in history, literature, grammar, and mathematics. History is an account of events that have actually happened, and there is no more difficulty in reconstructing these events in imagination than there is in reconstructing the facts of remote places in geography. Literature is an idealistic or critical interpretation of life, and, unless the pupils have by means of it gained a richer conception of life, the teacher has failed in his task. Grammar, mathematics, and the other form subjects are tools by which our theoretical and practical interests are systematized and precisely controlled, and, unless the pupil sees this when he is studying them, he is studying symbols only.

This analysis makes it clear that it is not the prominence of books in the schoolroom, but their misuse, that sometimes leads to verbalism. With the increase of knowledge, which is an inherent accompaniment of all progress, the prominence of books in the schoolroom, as in life, is bound to increase rather than decrease. It is the opportunity of the teacher to see that proper use is made of this increase. Furthermore, the increas-

ing use of books and other printed material in life makes it incumbent upon the teacher to develop an ever-increasing control of this material in school. This can be done only through the liberal and efficient use of such material.

4. The teacher's equipment

Among the factors that enter into the composition of the school, the teacher stands out as of unique importance. The pupil is immature, the printed page is symbolic, and appliances are inert. This leaves the teacher as the only wise and responsible factor in the situation. It is the teacher who does or does not guide the circle of instruction through the realities of life; it is the teacher who does or does not inspire a proper use of the textbook; and it is the teacher who does or does not enlist the activity of the pupil. The teacher is the keystone of the arch in teaching. As the teacher, so the school, is trite but true.

What, then, should be the equipment of the teacher from the standpoint of vital and realistic instruction? In discussing this question we should recognize that the teacher's professional equipment has two aspects — the pedagogical and the academic.

From the pedagogical standpoint the teacher is

both a mental and a social engineer. In dealing with the child he is a practical psychologist, while in dealing with the curriculum he is a practical sociologist. Both of these aspects, it is true, are taken up in educational theory, but that is not enough. On the psychological side we need also a study of human nature and a first-hand acquaintance with children, and on the social side we need a study of the social sciences and a first-hand acquaintance with life.

Psychology in its various phases has long had a place in the training of teachers, but this is not yet adequately true of history, government, sociology, and economics. These subjects supply a background that is indispensable if the teacher's work is to proceed on a trustworthy professional plane.

On the social side, however, the teacher's equipment should extend a full step beyond the study of the social sciences. The teacher is the interpreter of life for the rising generation and can discharge this function effectively only when he himself knows life at first hand. Every teacher should be an observer and a student of life as such, and a participator in it. At some period in his life he should have done something else than teaching, and while he is teaching he

should identify himself with at least one outside activity. This may be political, social, or religious, and need not consume a great amount of time. The sureness of touch and sanity of view that this supplies will enhance both his efficiency and his respect. It has even been advocated that a teacher should have another occupation to pursue outside of school hours. In some instances this has undoubtedly worked well, but as a general rule it is questionable. At the same time one should not attempt to serve two masters, although this may be possible, and even desirable, in succession.

Turning now to the academic aspect of the teacher's professional equipment, it should be noted at the outset that this may vary greatly from the kindergarten to the university. What may be called academic specialization has in the past not assumed a leading rôle till the high-school period was reached, but, with the advent of the junior high school and the inauguration of the platoon or Gary system for the elementary grades, specialization will soon permeate our entire school system. This specialization has its dangers, but its advantages ought greatly to outweigh these dangers. If we are to have art, music, nature-study, shop-work, sewing, cooking, and

physical culture in the elementary school in addition to the old-line subjects, we can have them on a vital basis only through specialization for which the platoon system supplies the organization. Economy of space may be the primary factor in stimulating the introduction of the platoon system, but effectiveness of instruction will be the biggest outcome.

Mastery of subject-matter obviously involves a grasp of the facts and principles of the subject concerned, but it is not always recognized by the beginner that it involves also a knowledge of collateral or supporting subjects. A teacher of English should know something of Greek, Latin, and at least one other modern language; a teacher of botany should know zoölogy, physics, chemistry, and soils, and so on. But more important than the question of *what* the teacher knows is the question of *how* he knows it. Is his knowledge academic merely, or does he know the realities themselves and the rôle that they play in social and personal life? If a teacher of botany, does he know the flowers, grasses, shrubs, and trees, their particular modes of growth and cultivation, and their economic and æsthetic uses? If a teacher of physics, does his horizon include the phenomena of physics as displayed in nature and

the diverse ways in which man has harnessed these phenomena for the achievement of his own ends?

But how is this ideal of knowledge on the part of the teacher to be reached?

Specialization, as this is being promoted now even in the elementary school, will help some, but the primary means of vitalizing knowledge is not specialization, but point of view. This all teachers can attain, regardless of where, what, or how much they are teaching. They can all see that studies center in the needs and realities of life and not in books. Having this point of view, they are assured the right point of departure and they may then broaden and deepen their knowledge gradually. The young teacher obviously cannot begin with intensive knowledge in many fields — he has not lived long enough to acquire it; but he can center his attention upon one subject this year, upon another next year, and so on till some degree of mastery has been attained. The sense of mastery that he is gaining in one subject will spread to the other subjects and vitalize them also.

5. Means of vitalizing teaching

Granted, now, that the problem of verbalism

is before us, that the relation of the school to life is understood, and that the unique importance of the teacher is recognized, what are the specific means of vitalizing instruction that are available to the teacher?

In reply to this question one of my classes gave the following items in the order presented:

+	Stereopticon views	*	Composition
*(?)	School gardens	+	Models
+	School excursions	+	Specimens
*	Laboratory work	*	Games
*	Manual training	+	Pictures
+	Recalled experience	+	Class demonstrations
+	Museums	+	Source material
*	Dramatization	*	Class clubs
*(?)	Sand table	*	Map-drawing
+(?)	Blackboards	+(?)	Stories and anecdotes

This list, while not exhaustive, is sufficient to indicate that the means of vitalizing teaching are abundant. But as it stands the list is chaotic in arrangement. Both clearness of understanding and availability for use demand that knowledge be organized. How, then, may these items be rearranged and systematized?

This question brought a variety of suggestions from the class, and we finally decided, as a be-

ginning toward systematization, to adopt a division into two classes, (1) objective and (2) subjective. It appears to be the function of some of these items *to exhibit subject-matter*, especially in the direction of realness, and of the others *to enlist the activities of pupils*. Items that seemed to us to fall into the first class we marked with a cross (+), and items falling into the second class we marked with a star (*). When it appeared that an item might be placed in either class, we added a question mark. It was readily seen that these two classes pertain respectively to two of the basic factors found in the school, — the curriculum and the child.

Our next problem was to arrange the items found under each head into some orderly sequence. We began with the objective items, and after some discussion decided to arrange them in their order of nearness to reality. This principle appeared to work out very nicely. When we came to the third subdivision — models — the question was raised if this order of sequence was also the order of effectiveness in teaching. It was soon decided that it was not, and that the items in each subdivision had their own pedagogical merits. The globe, as a model of the earth, is more effective for certain teaching pur-

poses than a direct consideration of the earth itself. The significance and use of the items in teaching we brought out in the main while we were rearranging them.

II

EXHIBITING SUBJECT-MATTER

1. The observation of reality

As a designation of the first subdivision in our reconstructed list we chose the term "observation of reality." Under this head we placed (1) field trips, (2) field assignments, and (3) recalled experiences.

We adopted the term "field trips" rather than "school excursions," because it is less open to criticism. The latter term suggests a picnic, and parents sometimes object to having their children taken on "picnics" during school hours; they are sending their children to school to work.

Field trips, as well as field work, have become well established as means of vitalizing school work. They represent the most logical means of overcoming the isolation of the school. It is true that the school as an institution is confined within the four walls of a building, but the heart of the school, the teacher and the pupils, need not remain so confined. They can go out and see many of the things they are studying about. This can be done, not only in the natural sciences,

such as botany, zoölogy, geography, and physics, but also in the social sciences. The study of governmental, industrial, and commercial topics in the elementary school, and of civics, economics, and sociology in the high school and college may well be supplemented by field trips. The elementary-school child absolutely needs to see a factory, a freight depot, and a court of justice if the conceptions that he is being taught are to have any content, and there are many things that high-school and college students have not seen, especially from a scientific angle.

Many places are so located that field trips may be undertaken in history and literature. A visit to Mount Vernon and a trip through the battlefield of Gettysburg bring the past right home to one; and who could not read with greater sympathy and appreciation the writings of Emerson, Thoreau, Hawthorne, and the Alcotts after having visited historic old Concord and breathed its tranquil spirit? We are here face to face with one of the great educational values of travel.

To make a field trip most effective, the following points should be observed by the teacher.

(1) The field trip should follow, not precede, the study of a topic in class. Only on that basis will the pupils know what to look for.

(2) Specific points to be observed and problems to be investigated should be noted beforehand. It may be well for the pupils to have these written out in their notebooks.
(3) Care should be taken not to attempt more on one trip than can be thoroughly studied and digested.
(4) The discussion of the points observed should follow as soon as possible upon the completion of the trip.
(5) For passing through buildings and the like, the class should be organized into a company with each member in an assigned place.
(6) Definite signals, as blasts from a pocket whistle, should have been agreed upon for forming in rank, breaking rank, and coming together to observe specific points.
(7) The pupils should clearly understand that a field trip is a phase of school work and that discipline must be observed.
(8) When the group exceeds ten or twelve, one or more assistants should accompany the teacher. Teachers in training, older pupils, or parents may be requested to render this service.
(9) The teacher should have been over the ground beforehand, located places of interest and perfected all arrangements.

While the pedagogical value of field trips is not questioned, it cannot be denied that they con-

sume much time, that they are often difficult to arrange, especially when the teacher has more than one class to teach, and that they are sometimes accompanied by risk of injury to the pupils. This curtails their usefulness.

The limitations of field trips may often be overcome by means of "field assignments." Instead of taking the entire class to observe botanical, geographical, or other features, the teacher may direct the pupils to observe these things individually. This may be done in nearly all cases where field trips might be used and often with topics so small that a field trip would not seem worth while. The teacher, as in the case of field trips, should usually have been over at least some of the ground beforehand. The observations made by the pupils should be reported to the class for information and discussion. This is enjoyed by the pupils and is profitable to the class.

While teaching a high-school class in astronomy one year, I made it my aim as a part of the course to get the students acquainted with the leading constellations, the conspicuous stars, and the visible planets. I did this almost solely through field assignments. Beginning with the region about the north star, with which many of

the pupils were already familiar, I sketched on the blackboard what they were to look for, and in the evening they themselves looked the matter up in the heavens, and recorded their findings in a notebook. Difficulties that were encountered we discussed in class the next day, but these were few. Only once did I meet with the class in the evening, and that was incidentally on a sleigh-ride. Since then I have tried the same experiment with elementary-school pupils, even as low as the third grade, with nearly equal success.

The work of the school may be connected with the outside world also through the *recall of past experiences*. Many children have traveled and all have had experiences with the physical, biological, and social aspects of their environment. These experiences may be, and are, used in connection with school work much as observations made for the purpose may be used.

2. *Specimens*

Next after the observation of reality we placed the item of *specimens*. This differs from the preceding only in that the things observed are out of their natural setting. They have been taken from their place in the world and brought into the classroom, laboratory, or museum.

Under the head of specimens should be placed not only tangible objects, such as flowers, seeds, and minerals, but also observable phenomena, such as manifestations of heat, light, electricity, chemical changes, and mental processes. Items of this type must as a rule be made evident by means of experiments. Such experiments isolate instances of the behavior of the real world and bring them before the class as specimens. Their manifestation is transitory, which implies that an experiment must be repeated for successive observations. They form the basis of the experimental work in physics, chemistry, and psychology.

Tangible specimens may be helpfully divided into *temporary* and *permanent*. A temporary specimen is one that is used up in its study, such as a flower in botany or a grasshopper in zoölogy, while a permanent specimen is one that may be used over and over, such as grains, minerals, and stuffed animals. Both have their place in the teaching process. Temporary specimens form the basis of laboratory work in botany and zoölogy, while permanent specimens find some place in the teaching of nearly all subjects.

Under the head of permanent specimens an endless variety of things may naturally be placed. Any concrete thing, living or dead, from any

source whatever, that may be kept for instruction or entertainment, comes under this head. Seeds, grains, leaves, pressed flowers, plants, trees, woods, soils, rocks, minerals, metals, animals, fabrics, and other manufactured articles enter into the list.

In respect to plants, animals, minerals, and manufactured articles, the environment of any one school is naturally limited, but by means of specimens and other supplementary material this limitation may in a measure be overcome.

Thus, when the class comes to a study of the cotton States, the museum furnishes specimens of the cotton plant in all its varied stages, together with pictures showing the manner in which it is gathered, and the products into which it is transformed. A stalk of cotton is passed around the class at the same time the child is looking upon the picture of the white-flecked field. As he handles the cotton boll, he is shown pictures of the pickers at work. So the lesson proceeds, description being reënforced by the exhibition of the object described, and this in turn by pictures showing how the crop is raised and how manufactured.[1]

A similar use of specimens and pictures may be made not only in other geographical topics, but

[1] Rathman, C. S., *The School Museum of St. Louis.* Bulletin 11, United States Bureau of Education, 1912.

also in historical, commercial, industrial, and other scientific topics.

The quotation just given names the museum as the depository of educational specimens and pictures. This is undoubtedly the leading institution in this field, but from the educational standpoint greenhouses and botanical and zoölogical gardens should also be classified here. To any of these, when available, the teacher may give field assignments or take field trips. A class studying tropical vegetation may get much from a trip to a greenhouse, while animals from many parts of the globe may be observed in a zoo.

Museums, greenhouses, and botanical and zoological gardens, however, are found only in our larger cities, and even when found must be visited by time-consuming processes. In respect to the museum, at least, this and other limitations are being overcome by the development of the *school museum*. Of this there are two types, the *central museum*, designed for a school system, and the *individual museum*, designed for one school building.

The central school museum has, in America, had its greatest development in St. Louis. This museum is described as follows by Mr. Rathman:

EXHIBITING SUBJECT-MATTER

The collection was begun as an experiment in 1905, at the close of the St. Louis World's Fair, when the Board of Education acquired from the exhibitors, principally by gift, large quantities of material, the educational value of which did not cease with the termination of the fair itself. Valuable additions have since been made through the courtesy of some of the great museums of the country, of the Jamestown Exposition officials, and of commercial firms, both domestic and foreign. The museum now (1912) contains about 6700 collections of educational material, so classified as to reënforce and accord with the course of study. The subjects in the teaching of which the education museum provides especially useful aids are history, reading, art, geography, nature study, and other elementary sciences. Of the collections on hand, 1742 are separate entries, the rest being duplicates.

Each week the teachers make requisition for the material which they need; that material, and no more, is delivered at their schoolroom door, and taken away again when it has been used. . . . Two wagons are kept busy delivering collections. . . . The city is laid off in five sections, equaling the number of school days in the week, and the schools of each section have a delivery once a week. . . . Some 30,000 of the collections were delivered to 100 of the St. Louis schools last year (1911) in addition to 5000 reference books. The museum is maintained by the Board of Education at an annual expense of about ten cents a pupil per year.

A suggestive example of the individual school museum is described by Arthur C. Perry, in Chapter VIII of his *Problems of the Elementary School*, from which the following extract is taken.

I began ten years ago by donating a number of specimens of my own gathering. The collection aggregated about six shelf-fuls in an ordinary cabinet in the principal's office. To-day (1910) the museum occupies one hundred thirty shelves in a room seventeen by twenty-four feet devoted exclusively to this purpose. The growth has been gradual and unforced. The teachers of the school have supported a museum fund by contributing ten cents each per month. . . . This fund is drawn upon to meet all expenses of the museum, which are of three kinds: cataloguing, preparing specimens, and purchasing material. . . .

In addition to purchase, material comes to us in many ways. The public museum has given us several of its duplicate specimens and material which, though not quite up to their standard, is yet sufficiently good for our purpose. Teachers, pupils, and others make frequent contributions. As an illustration, a stranger, passing the school building one holiday, got into conversation with the janitor, by virtue of which he was invited to visit our museum room. He accepted the invitation, and soon sent us our mounted fox.

Each teacher is provided with a catalogue and is expected to make constant use of the museum for illustrating his work, not only in nature study, but

also in reading, history, geography — in fact in all subjects which permit of objective illustration.

It is necessary that some one be placed in the position of responsible supervision of the museum. A teacher sufficiently interested to undertake the work can usually be found and should then be excused from other assignments of work outside the classroom. The duties of the curator are to act as treasurer of the museum fund, to accept and prepare specimens, and to care for the museum room. Pupils are always available who will enjoy helping the curator.

In France, according to Farrington, "one finds a *musée scolaire*, or school museum, in almost every school, and it is often of great assistance in the object lessons. The teacher encourages children to bring here things that have any unusual interest, and they often take great pride in their botanical and natural-history collections." In Germany, and no doubt in other European countries, the school museum is also very generally found.

The initiation of an individual school museum should rest logically with the principal, but he may enlist the coöperation of his teachers and the older pupils from the beginning. At the start it may be necessary to have the expenses borne by the teachers, supplemented by outside

donations and by the proceeds from entertainments, but once it is under way the expense should fall upon the school system. A school museum is quite as desirable as a school library and should be supported in the same way. In managing the museum, effective aid may be obtained from the older pupils.

3. Models

After specimens in the order of remoteness from reality we placed *models*. Under this head should be placed such things as globes, relief maps, and similar appliances useful in geography and astronomy; models of the eye, ear, heart, brain, and other parts of man useful in physiology; and models of engines, dynamos, and the like, useful in physics.

For teaching purposes, models are often more serviceable than the objects themselves. They are smaller and may therefore be more readily observed and handled; they are usually less complex, thus revealing the underlying principles more readily; and, in physiology, they are firmer and less repulsive.

Parts of the body, such as the eye and the heart, are especially repulsive to the adolescent child. This alone is sufficient reason for displac-

ing them, in the main, by models in the schoolroom, but, because of their firmness and sectional arrangement, more may actually be shown by means of them. In systematic courses in zoölogy and in training the expert, such as the anatomist and physician, the realities should, of course, be used, but models and realities may in all these fields be used together, one or the other merely being in the ascendancy.

4. Pictures

Next after the item of models we placed that of *pictures*. These take us from three-dimensional to two-dimensional representation and introduce us to a large and varied field, indeed. The pedagogical significance of this field is attested by the attention that has in recent years been given to visual education, so called, and by the cult that has developed about this expression. Some members of this cult have grown over-enthusiastic in their claims, especially for motion pictures, forgetting not only that there are many other and equally significant means of vitalizing teaching, but suggesting even that textbooks be essentially displaced in some subjects. This is manifestly absurd and is likely to hurt, rather than help, the cause, yet teachers should not lose sight of the

fact that in pictures they have one of the most available, varied, and significant aids in teaching.

Most teachers are now well aware of the vitalizing influence of pictures. It is a common experience upon entering a schoolroom to find pictures pertaining to topics under discussion arranged along the sills of the blackboards or fastened to the walls about the room. These pictures are made as much a part of the lesson as the text itself. The pupils study them both during school time and at intermissions, and they are discussed in the recitation period. This is done most frequently in geography, but it is done also in history, art, reading, industry, and the natural sciences.

The pictures available for teaching purposes may be helpfully divided into two classes, (1) those suitable for class observation and (2) those restricted by their size to individual study. Under the first head may be mentioned wall pictures, projectoscopic and stereopticon views, and motion pictures; under the second, book illustrations, picture postcards, lithographs, photographs, and stereoscopic views.

The arrangement under each of these heads follows roughly the order of faithfulness to realistic representation. This is also, in general, the order of appeal in entertainment, but, strange as

it may seem, it appears to be the inverse of the order of pedagogical serviceableness. Wall pictures are more serviceable in the schoolroom than projectoscopic or stereopticon views, and these in turn excel motion pictures. The reasons for this are many. Wall pictures are steadier than screen views, thus facilitating careful study; they may be approached without obscuring the light; and they may more readily bring into relief special features. The most important reason, however, is ease of use in the ordinary routine of the school work. Wall pictures, text illustrations, and the like may be studied without upsetting the work of the school, while motion pictures and stereopticon views require that the room be darkened and that a somewhat complicated machine be adjusted and operated. They may even require that the class adjourn to a special room. This is all right for special occasions, and for such occasions the pedagogical value, no less than the entertainment value, may be exceptionally high. If, for example, the class has been studying the salmon industry, having used photographic views throughout, the whole topic may be brought to a focus by a motion-picture exhibition of the various phases of the industry. The use here is similar to that of a field trip.

In general it may be said that the simpler pedagogical material is, the better it is for teaching purposes and the more likely teachers are to make use of it.

The supply of pictures that may be used for individual study is well-nigh endless. Such pictures abound in our textbooks and they may be obtained from magazines, newspapers, railroad and steamship folders, picture publishing houses, etc. Many teachers make collections of their own, and this, within limits, is splendid, but for a wide range of pictures teachers should not be held individually responsible. If there is a school museum, as there should be in every up-to-date school building, this is the logical depository for them and all concerned should take a hand in collecting them. They should be classified and filed. Teachers should also remember that most libraries make a point of collecting pictures on all conceivable topics and that these may be drawn and used for the asking.

More important than the question of getting pictures is the problem of using them effectively. So many are available that teachers often make the mistake of swamping the class. In one class period not more than ten or twelve can, as a rule, be studied to advantage. To bring in fifty, as

may usually be done with ease, is to attenuate proportionately the educational effect. This means that the few that are used should be selected with care and that they should be given careful consideration. The pupils should be led to observe them, not only in the class period, but also in the study period. The illustrations in textbooks are no less significant for students than the text itself.

To obtain some evidence for the significance of illustrations in study I tried the following experiment several years ago: I took the topic of the eye and the topic of lumbering and had presented in each essentially the same facts by means of pictures and diagrams and by means of description. I then took three groups of sixth-grade pupils, selecting them so that the abilities as determined by other school work averaged about the same in each, and gave to one group the pictures, to another the text, and to the third both the pictures and the text. The eye and lumbering were taken on successive days. Each group studied for twelve minutes and after a rest of five minutes all wrote upon the same questions. The groups that had studied the text alone and the pictures alone came out about the same — 75 per cent on a scale of 100 as we graded them — while the

group that had studied both the text and the pictures came out with an average of 85 per cent.

5. *Maps, charts, and diagrams*

Next to pictures we placed *maps, charts, and diagrams*. Pedagogically these should no doubt be used just as pictures are used, but logically they fall into a class by themselves. Instead of giving a copy of the thing as it appears, they aim to give a symbolic, schematic, or sectional presentation of essential features. It is in this that their distinctive pedagogical value lies. A diagram of a steam engine or of the nervous system may make evident to the eye the internal principles of operation, as a photograph never can, and a map in geography, though merely symbolic, occupies a place that nothing else can take. Travel and pictures may be necessary to give it meaning, but the map alone can give one a systematic conception of a large area.

6. *First-hand descriptions*

Next in our logical arrangement of the objective means of vitalizing teaching we placed *first-hand descriptions*, or source material. This has reference to accounts written by eye-witnesses and also to laws, charters, and other documents

that have come to us from other times and places. These make their appeal through words rather than through objective, pictorial, or diagrammatic representation.

Source material has been most exploited in history, both general and special, but it exists also in geography and in the natural and social sciences. In political history there is now no period that does not have its compilation of sources and the same is coming to be true in the special histories of education, philosophy, and psychology. In geography source material is represented by books of travel and the better type of geographical readers, while in the sciences it is represented by articles, monographs, and treatises dealing with original investigations.

In using source material in the school a clear distinction should be made between using it as a basis for original investigations and using it to supplement and vitalize the textbook. It is with the second only that we are concerned here, for the first belongs to the graduate school and the specialist. But as a means of supplementing and vitalizing the text, source material occupies a niche, especially in history and geography, that nothing else can fill. Any one wishing to test this should read the accounts of the Jamestown

Colony written by John Smith, Edward Wingfield, Raphe Hamor, and others given on pages 209–46 of Hart's *American History Told by Contemporaries*. These accounts fairly make the trials and tribulations of the colonists live before one. A similarly vitalizing effect in geography may be obtained from books of travel and geographical readers. In fact, not to assign much of the supplementary reading in both history and geography in source material would be to miss a pedagogical opportunity.

7. Second-hand descriptions

This list of items for exhibiting subject-matter should not be brought to a close without a sympathetic consideration of textbooks and books of reference. In contrast with the preceding item, these may be called "second-hand descriptions." They bring us back to our original point of departure, namely, what are the means available for supplementing the textbook in the direction of reality?

This question implies the relation that the textbook bears to the other means of presenting subject-matter. In an important sense the textbook is primary and the others secondary. Speaking generally, it is the textbook that sup-

plies the skeleton which gives form and function to the flesh and blood presented by the other items in our list.

This relationship alone would give the textbook an indispensable place in the schoolroom, but the good text has a number of additional characteristics that are not possessed by any of the other items discussed. The good text is comprehensive, presenting a rounded conception of the entire subject concerned; it is systematic, presenting the data in orderly sequence and bringing out relationships; and it is graded, being adapted to a particular grade of school or scholarship. Furthermore, the textbook is easily accessible and so may be frequently consulted or reviewed by the pupil.

The value of reference material in the form of other textbooks or special treatises is well recognized. Such material is used extensively in the social sciences, less extensively in the natural sciences, and occasionally in subjects like mathematics and grammar. Even a good text is restricted and should often be supplemented in respect to both facts and interpretations. Pupils should learn early that in expository topics usually more is gained by dividing the time available for study between two texts or treatments than

by devoting it all to one. In studying physics, for example, a student frequently finds that when the explanation of a topic in one text is not understood, the reading of another text clears the topic up immediately.

In history, and to some extent also in other subjects, teachers frequently make the mistake of requiring too much reference reading. This swamps the student and leaves him in the end with an unorganized mass of material and a confused impression. Introductory or basic courses should aim first of all to build up a well-articulated system of knowledge, leaving it to the more advanced courses to fill in this system by extensive reading.

8. Oral presentations

In relation to the school we usually think of first- and second-hand descriptions as being presented by the printed page, but this need not always be the case. They may be presented also by word of mouth. This is ephemeral, to be sure, yet as a means of disseminating knowledge it holds a large and attractive place. We all know the fascination of the speaker who has seen with his own eyes and heard with his own ears, but even second-hand information is to most people

more interesting when presented orally than when presented in print. Many people will listen with pleasure to lectures, sermons, and papers, but few will read these lectures, sermons, and papers when printed.

In school the presentation of information by means of telling or lecturing has long been a subject of debate. My supervisor of practice teaching in the normal school took the position that "to educate" meant to "draw out," literally that and nothing else, and would not tolerate "telling" in connection with any type of teaching exercise. All information had to be drawn out of the pupils by means of questions, and woe unto him who undertook to fill in a mental gap through the ear.

On the other hand, G. Stanley Hall has maintained that "telling is teaching and teaching is telling." The writer heard President Hall give this declaration soon after his graduation from the normal school and the contrast was most striking. Hall maintained that the path from the spoken word through the ear to the brain is the short and easy path, while the path from the printed word through the eye is the long and difficult one. The former has been used by the race from its infancy for thousands upon thousands of

years and is therefore well established, while the latter has been used extensively only for one or two centuries and is therefore only in the process of making. Listening requires practically no delicate muscular coördination, while reading requires a great deal of delicate and fatiguing muscular coördination.

Historically the spoken word was for centuries the sole vehicle of popular education. The rhapsodists of Greece, the elders of Judea, the minnesingers of Germany, and the troubadours of France all read or recited before their audiences. All the great teachers of ancient times taught orally, and most of them by direct exhortation. To this Socrates forms the only notable exception, and, if we may trust Plato's record, even he told much more than would be approved by the extremists of to-day.

In deciding upon the place of telling and lecturing in modern education, we must first bring to our minds two elementary principles that underlie the acquisition of all knowledge. The first of these has reference to the two great divisions into which all of our knowledge may be divided. These are (1) our knowledge of particular facts, and (2) our knowledge of relationships that exist between these facts. We know of numerous in-

stances of the condensation of moisture from the atmosphere, such as rain, snow, frost, dew, the "sweating" of a pitcher of ice water, and the "steaming" of eyeglasses and window-panes. So far these are just particular, isolated items of knowledge, but with this the reflective person is not satisfied. He wants to know further if there is not some common cause or element of relationship between these facts. This he finds in the factor of cooling which unites all the individual facts under one principle of causation.

It is obvious that the art of questioning, of "drawing out," is not equally related to these two types of knowledge. Granted that the pupil knows the facts, it is possible for the teacher to lead him by skillful questioning to discover the relationships, but he cannot similarly lead him to discover the facts. These the pupil cannot think out; he must learn them directly. This he can do only by observation, by reading, and by being told. Which of these methods shall be used in any particular case depends entirely upon circumstances. No one of them has an inherent psychological advantage over the others. In life we use them all and think nothing about relative advantages. This should be our guiding principle in school. The objective point is not method but

knowledge, and telling is often the quickest and most effective way of imparting it. This is especially true in the midst of a discussion when the fact is needed and when the pupils' minds are keyed up to that need.

Another elementary principle that we must bear in mind in relation to telling and lecturing is the principle of apperception. The more knowledge of basic facts that the pupil already has in a subject, the more he can take in from extended discourse, either written or spoken. In life we certainly do not feel that we are wasting our time when we are listening to a good lecture or sermon, but the chances are good that we should feel very poorly repaid if the speaker resorted to the question-and-answer method of developing his topic. The teachers of history and English in high school may with profit indulge in a considerable amount of supplementary lecturing and the teachers in college may do this still more. In these subjects, and in many others as well, advanced work consists largely of expository interpretations which lend themselves well to the lecture method. But when basic facts are to be learned, as in botany or chemistry, the lecture method is of little avail. These facts must be gained primarily through observation and exper-

imentation, and it makes little difference whether we are dealing with the student in college or the pupil in the elementary school. Narrative material, on the other hand, may always and everywhere be presented orally with good effect. This is evidenced by the delight in stories from infancy to old age.

While there appears to be no psychological reason why telling and lecturing are not at times legitimate and effective means of teaching, it is probably true that the lecture method alone is never sufficient. The student needs periods for reflection and discussion in order to assimilate the material that is being presented, and the teacher needs these same periods in order to maintain his contact with the class. Without these periods the teacher and class are likely soon to be far apart. It has taken the specialist many years of reading, research, reflection, and discussion to attain the mastery that he has achieved and he should remember that the pupils must be given a similar chance. The lecture method alone does not give them that chance.

9. Blackboards

One of the items in our original list that we marked with a cross followed by a question mark

was "blackboards." This meant that a blackboard may be used either to exhibit subject-matter or to enlist the activities of the pupils. When it is used by the teacher in sketching or outlining during the class period, it falls under the objective means, while when it is used by the pupils in writing or figuring, it falls under the subjective means.

An observer of teaching cannot fail to become impressed with the fact that good teachers make extensive use of the blackboard during the class period. When a new or difficult word comes up, it is written upon the board so that all may see it and pronounce it; when a machine is studied, it is diagrammed and the principles of operation made clear; when a complex topic is developed, it is outlined as the discussion proceeds so that a glance may reveal the ground that has been covered. There are few lessons in which the blackboard is not used at all and many in which it is used continually.

The advantages that accrue from a free use of the blackboard by the teacher are many. Writing on the board in itself attracts attention and enlists mental activity; it makes an appeal through the eye in addition to that made through the ear; it leaves a relatively permanent record

that may be reviewed by the pupil, and, when an outline has been developed, this may be taken in as a whole and the relationships involved appreciated. Sketches, especially when made with crayons of different colors, are a great aid in helping pupils to understand complicated situations. Training schools for teachers might well make it a point to develop in all their students the art of drawing rapidly on the blackboard.

III

ENLISTING THE ACTIVITY OF PUPILS

We noted above that the objective and subjective means of vitalizing teaching pertain respectively to the curriculum and to the child. These are the basic factors in the educational situation. The child is the organism whose responses in the forms of knowing, feeling, and acting we wish to develop, and the curriculum in its diverse phases presents the objective situations over which we wish to develop control. The two may be considered abstractly in isolation from one another, but in the dynamic processes of the school they become inseparably connected. The child cannot learn unless he has something to respond to and assimilate.

On the side of subject-matter the curriculum does present situations to which the child may respond, but these are so largely formal and symbolic that the responses are likely to be empty of significant achievement. It is for this reason that the teacher must keep alert to the various means of supplementing the text in the directions of reality.

The responses of the child in the traditional school are as a rule no less limited than the curriculum and call just as loudly for vitalization. The primary appeal is to memory and formal execution, while thought, appreciation, and significant manipulation are enlisted but little.

The nerve connections that the learning process should exercise and establish run not merely from the sense organs to the brain, but from the sense organs through the brain to the muscles, glands, and vital organs, and then back again to the brain. Psychologically this means that the learning process does not include knowing merely, but knowing, feeling, and doing. The full comprehension of a thing means that it is recognized through the senses, that its significance in life is appreciated, and that it is used with some degree of skill. A ball to a child is, indeed, an object of a certain visual appearance, but it is primarily an object that he can roll and throw and chase and play jolly games with. We recognize this when we say that teaching is not a pouring-in process, but a development of the powers of the learner, both mental and physical, a process of adapting him dynamically to all the various aspects of his environment.

From all this it becomes evident that there is

no less need of supplementing the usual responses of the child in school than there is of supplementing the textbook. It is only to the extent that the child's spontaneous responses are enlisted that his learning becomes vital. Granted a sound curriculum, the teacher's primary function consists in preparing the situations (subject-matter) so that their significance will be appreciated, and in providing opportunities for rich and varied activities through which the subject-matter may be mastered.

Space and relevancy do not permit us here to discuss in a rounded manner the theory of motivation, but it is evident that this theory has been definitely implied in the foregoing paragraph. In life we are moved to action primarily because the situations in which we find ourselves impel the action in order that our needs, desires, or ambitions may be realized. To realize these inherently brings satisfaction; not to realize them brings disappointment. Secondarily, we want also the good-will and approval of our fellows.

In school the pupils should be moved to action in the same way. They also are meeting situations that must be mastered through action and they also are subject to the approval or disapproval of their fellows, the teacher, and others.

If these situations seem to them sufficiently worth while, their reactions are spontaneously enlisted and they bear on to the end so that they may gain the satisfaction of successful achievement and the approval of their fellows.

When the curriculum is as it should be, bearing a vital relation to the needs of life, and when it is properly graded, fitting the progressive needs and capacities of the child, the teacher usually has little trouble with motivation. But there are times when this is not the case. It is then that the resources of the teacher must be drawn upon to prepare the situations so that their significance will be appreciated. When this has been skillfully done and there are still pupils that do not respond, which is rare, it is probable that these pupils are exceptional and need either special treatment, a special curriculum, or both.

Let us assume, then, that our subject-matter is significant, that our pupils appreciate this significance, and that the maximum reaction of the pupil is essential in mastering this subject-matter. What, now, are the means that are available for enlisting the activity of the pupils?

A variety of these means is included in the list on page 75. Our first problem in discussing them was to arrange them into some logical order of

sequence. As a principle of such sequence we adopted the order of nearness to life's activities. This principle is the direct counterpart of the one we used in the objective list. One directs us to real things, or as near as we can get to them, and the other to real responses, meaning by real responses such as the actual needs of life spontaneously bring forth.

1. *Part-time education*

In appearance, at least, the closest connection between theory and practice is found in the various forms of alternating and part-time schools now current in industrial and engineering education. Every one is, or should be, interested in his calling, and, when the theory that controls this calling is acquired in direct relation to the calling, the situation is ideal, not only for motivating the theory, but also for mastering it through immediate and vital application.

In *alternating schools* the pupil is in school one period, usually one or two weeks, and in the shop the next period. This is accomplished by having two boys assigned to each job, one being in school and the other at work, a shift being made once a week or two weeks. In Fitchburg, Massachusetts, for example, the boy who has been in school

during the week goes to the shop on Saturday and works with his mate so as to be prepared to continue the work without interruption on Monday.

During the week in school a large share of the instruction that the boy receives has a direct bearing on the problems met in the shop. Often the persons that supervise the shop-work alternate with the boys and give in school the theory bearing on the shop-work. This obviously leaves little chance for theory and practice to become separated and the interest inherent in the one becomes attached to the other also.

In *part-time vocational schools* the student is at work a part of the day and in school a part of the day. The school period may come after the working day or during special periods set apart for schooling within the working day. Such schools are found in many commercial and industrial plants and in some railroad systems. The work offered is intended to bear direct relation to the employment. Work taken by teachers after school hours, on Saturdays, and by correspondence, may as a rule also be classed as part-time vocational instruction.

The pedagogical situation involved in alternating and part-time schools is essentially identi-

cal. Motivation is direct and intrinsic and this tends inherently to vitalize responses and insure thoroughgoing comprehension. This, of course, holds only when the work taken by the student bears a direct relation to the employment. It does not hold for general culture work taken on a part-time basis or for vocational work that prepares for a vocation different from the one in which the student is engaged. A student studying on part time, though, is usually much in earnest and this gives him an advantage in his classwork.

It should be noted in passing that both motivation and opportunities for applying the facts and principles that are being learned in real situations are simpler in vocational and professional education than in general education. Preparation for a calling means preparation for a livelihood. This appeals directly to both need and ambition, and many vocational activities may easily be brought into the schoolroom. These activities, furthermore, are so prevalent that home projects for students are easily found.

2. Projects

The project as a special means of vitalizing instruction had its origin in agricultural education.

According to Heald, "The idea of projects at home crystallized and took on the name of 'home projects' about 1908 in Massachusetts, receiving the sanction of the State Board of Education under suitable legislation in 1911. . . . The term carries with it the idea of a program of importance, of some duration, and an expectation of certain tangible and valuable results." [1]

Projects of importance, of some duration, capable of yielding tangible and valuable results are found with relative ease in agricultural education. In a class studying field crops, for example, one student may undertake a wheat project, another a corn project, another a potato project, and so on. Each student is expected to carry his project through from beginning to end. He must test, fertilize, and prepare the soil; he must test, disinfect, and plant the seed; he must cultivate the plants, harvest the crop, and sell the product; and he must keep an itemized account of the time and money expended. In short, he must do everything that a farmer, ideally at least, should do with all his crops. During the class period the pupils pool their experiences and profit from one

[1] Heald, F. E. *The Home Project as a Phase of Vocational Agricultural Education.* Bulletin 21, Agricultural Series 3, p. 7. Federal Board of Vocational Education, 1918.

another. Similar projects are being carried out in horticulture, poultry, stock-raising, and farm management. In all these the students apply the theory learned in the classroom. The pedagogical ideal of studying theory in relation to practice, carried through by the learner himself, is realized.

The distinguishing characteristic of these projects is the use of a vocational activity for teaching purposes; something worth while is produced. This may be a crop, an animal product, a mode of management, or a new method. In agriculture, home economics, and other forms of vocational education it is this objective goal that characterizes the project. The word retains the same definite meaning that it has long held in life. A building project implies the construction of a building, a roadmaking project, the making of a road, and so on.

When we come to the academic subjects this idea of a project is not so easily realized. In reading, in arithmetic, in geography, and in history, it is not easy for the pupil to produce something of economic worth, something that society values regardless of personal sentiment. This is because these subjects, as a rule, are not ends in life, but means; they serve as tools in the achieve-

ment of objective undertakings and do not in themselves constitute such undertakings. This is true for all save only the constructive scholar and the research specialist.

This difficulty, however, has not kept enthusiasts from entangling the term "project" with the teaching of the academic subjects. They have done this in two ways, by attempting to change the original meaning of the project or by attempting radically to modify the curriculum.

Kilpatrick, Stevenson, and a few others have defined the term "project" with subjective rather than objective significance. Kilpatrick says:

> We understand the term "project" to refer to any unit of purposeful experience, any instance of purposeful activity where the dominating purpose, as an inner urge, (1) fixes the aim of the action, (2) guides its process, and (3) furnishes its drive, its inner motivation.

With this definition in mind, Kilpatrick distinguishes four types of projects as follows:

> (1) Those experiences in which the dominating purpose is to do, to make, or to effect. (2) Purposeful enjoying or appropriation of an experience. A boy will see and enjoy fireworks, or a circus, or a parade of soldiers. (3) One in which the dominating

purpose is to solve a problem, to unravel and so compose some intellectual entanglement or difficulty. (4) Experiences in which the purpose is to acquire some item or degree of knowledge or skill.[1]

Obviously Kilpatrick recognizes as many types of projects as he recognizes varieties of subject-matter. This is natural, for he makes the meaning of the term broad enough to include all active, motivated learning.

Stevenson says: "A project is a problematic act carried to completion in its natural setting."[2]

The only term not clear here is "natural setting." By this Stevenson means merely that the problem in hand is real or significant to the pupil. When this is understood, the complete agreement of Stevenson's conception with that of Kilpatrick is evident.

The trouble with this conception of the project is that it includes too much. Instead of designating a specific advance in educational practice, as is done by the project in agricultural education, the term is made synonymous with vitalized teaching in general. The emphasis is placed, not on a type of objective achievement, but on subjective motive and activity. This merely

[1] *Teachers College Record*, vol. XXII, p. 283. September, 1921.
[2] Stevenson, *The Project Method*, p. 43.

substitutes one term for another and leaves us where we have been for many years. For a generation or more this conception has been known as the problem-solving method, motivation, or the doctrine of interest. On the side of method, this is the conception that Froebel, Herbart, Pestalozzi, Rousseau, Montaigne, and the sense realists were after and measurably overtook. In taking up cudgels for it under the new term of "project method," its defenders are merely continuing the battle against the ever-present formalizing tendency in education, the battle against pedagogical dry rot. This is important, as important as the weekly sermon, but to identify the term "project" with it is confusing. It obscures the specific advance for which the project as a teaching device should stand.

Vitalized teaching, with which the term "project method" is here being confused, is a complex concept that has to be analyzed into its elements if clearness is to be gained and progress registered. From the teacher's standpoint, the elements involved are motivation, or the appreciation of worth; the response of the pupil in the act of learning; and the question of means of enlisting and realizing this response.

The theory of motivation is now pretty well

understood, and psychologists have familiarized us with the intellectual, emotional, and physical aspects of response; but there is still room for the discovery or invention of additional devices for enlisting the responses of pupils in vital ways. It is here that the contribution of the teaching project lies. This is, relatively speaking, a new and vital way of enlisting the activity of the learner. Implicitly we have no doubt had the fact for some time, especially in manual training where the making of useful things has long held a place, but it has remained for the use of the project in agricultural education to make this device explicit and, therefore, specifically available for extension in practice.

Another attempt to sidestep the difficulty of finding real projects in the academic subjects consists in broadening the meaning of the term so as to include, not only objective achievements of significance, but all construction work whatsoever. This is exemplified by Parker in a description of historical construction projects published in the *Elementary School Journal* for January, 1922. A castle and fortified town were constructed out of cardboard by a fifth-grade class which was studying the feudal age in European history.

The children had read the stories of King Arthur and other knights, as well as descriptions of life in town and castle. On the basis of this reading, they planned an imaginary medieval town and castle. . . . They then constructed the walls and buildings from cardboard coated with a preparation of flour and salt to resemble stone. Certain parts were colored with coffee, water-colors, etc.

The next fifth-grade class which worked on this project constructed a historical castle instead of an imaginary one. They chose the castle of Kenilworth, and from books of travel, encyclopædias, etc., obtained the details of its construction.

This conception of the project, instead of shifting the basic meaning to subjective attitude, merely omits the aspect of economic significance. Something is produced, just as is done in agricultural or sewing projects, but the thing produced has no inherent practical worth. It is produced merely because the experience of producing it adds valuable aspects to the knowledge gained and supplies motive for reading and research. This is good as far as it goes — "construction work" has, in fact, long held an approved and honorable place in teaching; but it seems unwise to stretch the meaning of "project" to cover this type of activity. This is detrimental to the meaning of both terms and leads to confusion in practice.

If the meaning of "project" is stretched to include mere construction work, then we should divide projects into two classes, (a) real and (b) formal. As compared with the raising of an acre of corn, the making of a castle out of cardboard is not a real but a formal activity. But why introduce the term "formal project" when the established term "construction work" is serving the purpose perfectly well?

While it is granted that construction work comprises a legitimate and effective means of vitalizing teaching, it cannot be denied that, under the designation "project teaching" wasteful practices are now frequently indulged in. In the scramble to be in the prevailing pedagogical style, activities are chosen and carried out at great length that have but a thread of connection with the subject taught and that lead to no significant achievement in themselves. For this, supervisors are frequently to blame. Many of these are incessantly urging their teachers to use the project method when neither they nor the teachers have any clear idea of what teaching by projects means.

As instances of such wasteful activities may be mentioned the making of a miniature Roman Forum by a Latin class, the making of a model of the Parthenon by a history class, and the con-

struction of an elaborate model of the Panama Canal by a geography class. Each of these consumed much time, produced nothing of consequence, and taught little of the subject concerned.

We have so far considered two variations of the project idea that turn upon a modification of the original notion itself. If we must have projects in academic education, this modification is necessary, for the original idea simply will not apply. But there is another way out of the difficulty that confronts us and that is to do away with the academic curriculum. Let us adopt in its place a *project curriculum!*

The basic idea of the project curriculum consists of:

> The selection of a major project for each grade of the elementary school, large enough to provide a basis for most of the work of that grade throughout the year. Within each major project arise minor projects related to the major purpose and providing the immediate activities which make up the daily work of the respective grades.

This quotation is from Bonser's introduction to Margaret E. Wells's *A Project Curriculum* (Lippincott, 1921). In the book itself Miss Wells presents in detail projects for the first three grades. The pupils of these grades started the

work by playing "Fair," which was suggested by the New Jersey State Fair. This was followed by three separate, yet interrelated projects. The third grade played "City," the second grade "Store," and the first grade "Families." With these projects and their ramifications the work in reading, writing, number, etc., was correlated. That is, the primary attention of the children was centered, not on the traditional subjects of the school, but on activities — in this case play activities — and the traditional subjects were then cultivated as needed.

A similar idea underlies the curriculum of the University Elementary School at Columbia, Missouri, as worked out under the direction of Professor Meriam.[1] Instead of play activities, which may vary indefinitely from school to school and teacher to teacher, Meriam centers the work of each grade about four basic interests. These are: (1) observation, or the study of the environment; (2) play; (3) stories, including music and pictures; and (4) hand work. In the pursuit of these interests the traditional school subjects are naturally involved and the pupils learn them, theoretically at least, in a vital, dynamic way,

[1] See Meriam, J. L., *Child Life and the Curriculum.* World Book Company, 1920.

although incidentally. Be it said to the credit of Meriam, however, that he does not hesitate to give generous doses of reading, arithmetic, geography, history, etc., when these seem to be needed. Yet, if the experiment by Miss Wells may be called a project curriculum, that of Meriam is entitled to this designation still more.

From the standpoint of curriculum construction as a basis for vitalized teaching, this experiment of Meriam is profoundly interesting. Life, it is true, consists of a variety of activities or projects that may be grouped into strands similar to the four subdivisions of Meriam. These activities bear no obvious resemblance to the traditional subjects of the school. Yet it is true also that the activities of life frequently involve reading, arithmetic, geography, history, physics, etc., and that they cannot be pursued with maximum effect without a mastery of these subjects. The school subjects, in the main, represent those achievements of man, logically organized, that serve as means in mastering the activities of life.

We have here placed in opposition the relatively abstract and systematic studies of the school and the concrete, unsystematic activities of life, and the question is asked which of these should form the substance of the curriculum.

School practice to date has undoubtedly given the answer in favor of the school studies. The assumption has been that life itself supplies the practice of living and that the school should supplement, reënforce, and systematically develop those means that the informal activities of life cannot adequately develop. This seems sound enough in theory, but in practice it cannot be denied that life activities and school work have often not dovetailed very well. School work has worn a groove of its own and has gone on quite unconscious of the life outside for which it exists. Too frequently the result has been a self-sufficient, lifeless formalism that has wasted the opportunities of the child. Naturally teachers and educators of vision have rebelled against this and have concerned themselves with means of vitalizing the school work. Perhaps, as Meriam contends, the very basis of the curriculum is wrong. Perhaps we should shift the basis of the curriculum from the traditional school subjects to the activities of life themselves. This, it would seem, would insure vitalized work, for the activities of life are inherently interesting.

But when we attempt seriously to move in this direction several difficulties confront us. In the first place, life activities cannot be successfully

corralled and placed into the environment of the school. When pursued in school, such activities become at best only pale imitations of the real things of life. The mere mention of vocational activities, political activities, home-making activities, and recreational activities is sufficient to make this clear. This alone is enough to make us pause, for we are in danger of entering a more deadening formalism than the one we are trying to escape. Think of this especially in respect to teachers who have but little more than a book acquaintance with most of the activities of life and who have not originated the curriculum they are trying to follow.

In the second place, we must remember that the work of the school, while getting its sanctions from the activities of life, is really not concerned immediately with these activities at all. At best, these activities are only means when it comes to the school. Were it otherwise, schools would not be needed, for life outside would be quite sufficient.

The school has evolved to develop those knowledges, attitudes, and acts of skill that are needed in life, but that are not adequately developed there. These are none other than the traditional subjects of study from the kindergarten through

the university. It is these that are the immediate concern of the school and there is no way of getting around this fact. Incidental education can no doubt develop rule-of-thumb skill in both vocational and non-vocational activities, but through the schools we are after rational control, and this demands an approach from the side of systematized knowledge or science, no matter how closely this may be connected with practice.

It does not appear, therefore, that a project curriculum, or a curriculum based on life activities, is a cure-all for academic formalism. At best such a curriculum is only another means of attacking and vitalizing our school subjects, and, unless the connections with life are constantly kept in view, immunity from formalism is not assured. There is nothing inherent in a curriculum of this nature that insures vitalization any more than there is in the usual curriculum. Indeed, the contrary might easily be argued. Subjects like reading, arithmetic, geography, history, physics are not imitations or copies, but real instruments that find varied and daily uses. A teacher should find no more difficulty in teaching these subjects dynamically in relation to life itself than he should in teaching them incidentally through pseudo-life activities.

Vitalized teaching is, in the end, far more a matter of the teacher than any particular mode of curriculum organization. This is not saying that an archaic curriculum autocratically administered does not seriously interfere with vital teaching; it is merely a recognition of the fact that particular curricula or ingenious devices do not automatically insure good teaching; they are not self-operative. Good teaching always has, and always will, depend primarily on the insight, resourcefulness, and professional skill of the teacher who administers the curriculum or uses the device.

3. Field work

A device that is frequently confused with the project, but that may be logically distinguished from it, is *field work*. The confusion is well exemplified in the teaching of community civics. A class that divides itself up into committees, each of which makes a first-hand investigation of a certain aspect of the local community, is said to be using the project method. Even when each committee prepares a written report for submission to the class, no project in the narrow sense has been consummated. The end desired is the vital knowledge gained through the field work,

and the next class very properly disregards the findings of the preceding class and again makes a first-hand investigation of the community. It is not the product, but the knowledge and attitude gained, that is the objective.

If a class made a survey of its community for the purpose of preparing a text for succeeding classes, or for the use of the city council, the term "project" could very properly be applied. For pedagogical purposes, however, this would in the long run be far less effective than letting each class make its own survey. Each class should, of course, have a purpose for undertaking the survey, but that need never be twice alike. We have here a situation in which field work is the most effective method available and fits admirably as a designating term.

Field work has long been used effectively in geology, geography, botany, zoölogy, and surveying. It differs from field trips in that it goes beyond observation to working with the things and phenomena that are being studied. In practice, of course, the two may often be combined, but that is true of all methods and devices, not only in teaching, but everywhere. Logical distinctions need never be manifest in practice; their place is in the mind of the worker from which

position they should help in the guidance of practice.

4. School credit for home work

A pocket edition of the project is found in the device known as "school credit for home work." This device was started on its recent meteoric career by Mr. L. R. Alderman while principal of the high school at McMinnville, Oregon. In an attempt to bring the school and home closer together, Mr. Alderman started in 1901 to give credit in algebra for getting breakfast, washing dishes, making beds, and the like, at home. Other teachers soon took up the practice, but, instead of allowing the work to count in algebra, they allowed it to count as credit toward graduation, toward honors at graduation, toward increases in examination marks, toward prizes, and toward special holidays.

The activities that have been allowed to count for school credit include about every activity in which children may properly engage. One of the shorter lists reads as follows:

Work in garden	Washing
Splitting kindlings	Ironing
Bringing in fuel	Care of baby
Milking cow	Care of chickens

Care of horse	Running errands
Preparing meals	Bathing
Washing dishes	Brushing teeth
Sweeping	Sleeping with window open
Dusting	Bed before nine o'clock
Bedroom work	Attending church or Sunday school [1]

To correlate the work of the school with that of the home and the shop is admittedly splendid, but to do this through unrelated rewards and prizes may well be questioned. It will be noted that most of the activities in the above list fall into the fields of home economics, agriculture, and hygiene. These subjects ought to be in the curriculum of every rural school, and if they were and they were properly taught, it would not then be necessary to bring most of the activities listed into the school in an unrelated way. Such activities would then become projects and field work in the studies pursued in school. School credit in hygiene should be given primarily, not for theoretical knowledge, but for hygienic living. This would take care of bathing, brushing the teeth, sleeping with window open, and several other items in this and other lists. A farm boy studying agriculture should, as a matter of course,

[1] Alderman, L. R., *School Credit for Home Work*, p. 109.

apply at home the principles learned at school. He should be expected as a part of his program to milk cows, care for horses, and work in the garden, and the same principle holds for the girl studying cooking, sewing, and home management. A girl studying these subjects in school should gain practice at home in preparing meals, making clothing, and keeping a bedroom in order.

When school credit for home work is viewed in this manner, it is no longer unrelated, but assumes a vital and logical connection with some of the basic subjects of the curriculum. The question no longer is, Should teachers give credit in school for work done at home? but, Should they give credit for certain subjects in school without work done at home? The desired interrelation of the school and the home is also brought about.

Before leaving this topic we should note clearly the difference between correlating the work of the home and the school and regulating the work of the home by the school. The former is coöperative and desirable, the latter paternalistic and undesirable. To such items as practicing private music lessons, running errands (cheerfully), delivering papers, and attending church or Sunday school, found in many of the school and home

credit lists, the home has a right to offer strenuous objection. The regulation of these activities falls entirely within the province of the home. To contend otherwise is to assume that the home has broken down, that it is not properly discharging its duties, and that it should, therefore, be regulated by the school or other outside agency. The regulation may be well meant, and it cannot be denied that some homes need it, yet this is just the way to proceed in undermining the vitality of the home. An institution, like an individual, is developed only by giving it duties and holding it responsible for them.

5. School and home gardens

Like school credit for home work, school and home gardens are also closely related to projects and to field work. Gardening is an occupation in itself in which the school may well give instruction and training, and it forms a valuable adjunct in teaching nature study, botany, and the elements of agriculture. Children should be given abundant opportunity to work with plants, to grow them, care for them, and claim them as their own. Only in this way can the knowledge and attitudes that should be derived from nature study and gardening be adequately developed.

A child that has cared for a garden plot from planting to maturity is likely thereafter to have full respect for the gardens, and even the lawns, shrubs, and trees, in his neighborhood.

School and home gardens should be looked upon as supplementing one another. There is seldom enough space available on the school grounds for each child to have a garden of his own, and in the northern part of the United States the plants are only well out of the ground when the schools close for the long summer vacation. Both of these difficulties are in a measure overcome by individual home gardens under the guidance of the school. Much interest in these gardens is in some places stimulated by the giving of prizes in the fall for the excellence of the products raised by the pupils during the summer.

The plants raised by the children should in the main be the staple grains, vegetables, and flowers of the region, although odd and imported varieties may also be experimented with. It should not be possible in this latitude for a normal child to grow up without knowing corn and potatoes when he sees them growing in the field, for example!

6. Shop and laboratory-work

Work that is done with tools and which results

in a tangible product is usually called "shop-work," while work that is done with appliances and results in knowledge is called "laboratory-work." The former applies in the main to the vocational and manual subjects, and the latter to the pure sciences. To this there is one exception, namely, the practical work done in connection with cooking and sewing. This is usually called "laboratory-work," even though it does lead to tangible and directly useful products. Studio-work in art and music also belongs here.

Both shop- and laboratory-work are so well understood and have made so secure a place for themselves in education that but little space need be given to them here. All the natural sciences, including physical geography and psychology, whether taught in the elementary school, high school, or college, must now have their laboratories. Work-shops are found in connection with almost every school.

But just because we have shops and laboratories in abundance, it does not follow that the work done in them is assuredly vital; far from it. Much of the laboratory-work, especially in physics and botany, has degenerated into a lifeless formalism. It is little more than busy-work done in a perfunctory way. The pupils follow

the manual, manage to get the results that are wanted, and write them up mechanically in their notebooks. Often much time-consuming drawing is called for.

The reason for this unfortunate situation is found in the fact that the place of laboratory-work in introductory science teaching is often not understood. Such work is looked upon as an end rather than a means, and this robs it of its vitality.

The end of science teaching is a vital comprehension of the physical and biological aspects of one's environment. Toward the achievement of this end both the text and the laboratory become indispensable means. Another indispensable means is found in field trips. The environment sets the problem, the text gives the facts and theory for the solution, the laboratory makes these facts and theory concrete and meaningful, and the field trip, having in anticipation aided in motivating the entire process, applies the knowledge gained to the understanding of the environment.

Take, as an example, the comprehension of the steam engine. All of the pupils know something of this machine, but few, if any, understand its operation. The desire to understand it is easily

aroused. The text gives the theory, but for most of the pupils this is pale and meaningless without experimentation in the laboratory. Equipped with this information, a visit to, and study in, one or more engine-rooms puts the capstone on the knowledge gained and leaves the pupil with the feeling that now he understands one element in our industrial process.

In principle this exposition applies to all science teaching, although the details of the laboratory-work may vary much from science to science. These details we must leave to more extended treatises and to the ingenuity of the instructor. The point to be noted here is that laboratory-work forms an integral part in the process of science instruction conceived as a unit. So conceived, the work becomes vital, for the pupil comes to the laboratory with real problems to solve, problems that extend beyond the routine work of the laboratory. In maintaining this vitality, however, it is doubtful that most of the laboratory-work done below the college, with the possible exception of that done in chemistry, should be systematically prescribed in a manual. This prescription always tends to lower the work into a lifeless routine. The problems for experimentation should grow out of the class discussion

and the instructor should feel free to skip about in several manuals or to devise his own experiments with the coöperation of the class.

7. Dramatic expression

Dramatic expression bears, in a measure, the same relation to the social sciences that laboratory-work bears to the natural sciences. By the term is meant informal acting out by the pupils. This is used extensively in connection with all the work of the primary grades, and in history, civics, and English as far up as the high school.

In history and civics it is highly desirable that the pupils act out at least some of the topics studied. Unless this is done, it is difficult to see how the knowledge that they are gaining is to become concrete and meaningful. When the National Congress is under consideration, the class may form a Senate and a House of Representatives and pass laws, observing, as far as possible, the rules that Congress itself observes. When the administration of justice is studied, the pupils may organize and operate a court, and so on. Field trips may be taken in connection with some of these topics, but alone they are seldom enough.

History offers especially good opportunities for

enlisting the activity and initiative of pupils through dramatic expression. A good example of this is recorded in the *School Review* for September, 1910 (vol. 18, p. 481), by D. C. Knowlton, under the title, "An Athenian Assembly: An Experiment in History Teaching." It was Mr. Knowlton's purpose to put more reality into the teaching of the Peloponnesian War.

Mr. Knowlton allowed his classes to form an Athenian Assembly in which all the features of the original assembly were closely copied. The original Greek names were used throughout. Meetings of this assembly took the place of the regular class exercises and the topics of the lessons were considered in the form of resolutions. Mr. Knowlton's entire account is well worth reading.

The spirit with which the pupils entered into the discussions and the hold that the work had upon them is indicated by the following extract from one of the final test papers. The resolution discussed was the question of making peace with Sparta after the blockade at Sphacteria:

> We ought not to make peace after the blockade at Sphacteria. Nothing would be gained by this, for, although we have defeated the Spartans thus far,

they are not yet humbled. The truce has been broken and there is no sense in agreeing to accept terms which, although perhaps slightly to our advantage, would not decide the leadership of Athens. Athens and Sparta are rival cities and one or the other must be subjected. Shall we not, therefore, follow up our victories while Sparta is somewhat disheartened? Thus far we have gained no decisive victory. A truce would only be broken and the victories we have gained are not great enough for us to demand anything we wish from Sparta, or in fact anything that would do us any good. Let us continue the war.

Another experiment along this line that might readily be varied and expanded to include other school subjects is reported by Colin A. Scott in his *Social Education*, p. 141. He says in part:

After some experiences in small groups, the class practically turned the history period into self-organized work. The subject for the year in this grade was American history, and the pupils proposed that . . . they organize themselves into the American Congress and act out the debates and decisions of this body from the beginning to the present time. It will be noticed that the class accepted the general aim, namely, the study of American history, but proposed within this general aim to outline their own course of study. The teacher agreed to this and promised to give them a written

examination on the work they actually did. A boy was chosen to act as George Washington, the first President, and members of Congress for the different States were elected by the class. The class prepared themselves at home for the debates on their bills, but at times when this was difficult they adjourned, sent to the library for books, and in little knots, assisted by the teacher, got up the information that they needed. The form of the bills was obtained from an actual bill. . . .

When the class came to the Dred Scott case, they had not thought of the Supreme Court, but when its need was apparent it was forthwith created, the prisoner was brought in, and the case was argued on each side by lawyers, both of whom made excellent speeches, and the historic decision was finally reached.

I hardly need to say that the class got a thoroughly good grip of American history. A great deal of special work was done. Libraries throughout the town were ransacked. . . . Books and newspapers printed during the period that the class was reënacting were particularly sought after.

This experiment is of interest especially because the work done by the class was not something extraneous or supplementary, but fell within the prescribed course of study. It is within this field that dramatic expression and the active participation of pupils should prove the most fruitful. The more pupils can be led to feel that the work

they are doing is thoroughly their own, the better it is for all concerned. Teachers might well take pupils more into their confidence and let them take a more active part in the pursuit of the regular school work. The good teacher is like the good general who plans the main features of his campaign, but who keeps himself in the background and trusts to his subordinates to work out the details.

Impersonation, which holds so large a place with little children, should be classed as a variety of dramatic expression. Children in the kindergarten and the primary grades are still in the dramatic stage of development and spontaneously put all their ideas into action. When they hear about a tiger slinking up to his prey, they straightway become that tiger and begin to slink, too. Similarly they imagine themselves to be lions, elephants, birds, and even flowers; and when they study industrial and other processes, such as raking hay or riding horseback, they want at least to go through the motions. Without these motions things mean as yet very little to them, and for this reason impersonation and dramatic expression should hold a large place in the kindergarten and primary grades.

But at the age of about nine, or in about the

third grade, a transition takes place. At this time the child acquires a genuine appreciation of work and considers it childish to view everything in the light of play; he wants to do some real work. Dramatic expression must from that time on be liberally supplemented by other means of gaining the child's interest and response.

8. Dramatization

Dramatization may be distinguished from dramatic expression by assigning it a more formal position. In dramatization something not in the form of a play is definitely changed into such form and is then memorized and acted. Thus novels are frequently changed into plays, and for educational purposes such noted events as the constitutional convention have been dramatized. A typical example of dramatization as used in school is reported by Miss Hunt, of the Somerville, Massachusetts, High School:

> One of my best classes, a college division, wished to dramatize *A Tale of Two Cities*. I left the planning of the entire work to them. . . . We had eight weeks in which to do it and they kept their forces at work "day and night." . . . They did the work wonderfully well. Each day a scene was ready. . . . All the principles upon which we had drilled in the

study of the drama during the early part of the year were hunted up and brought forward with a great display of wisdom. A year of study in the usual way would not have accomplished what they did in that short time. They also gained a much better appreciation of the whole work than has ever been the case in any of my classes conducted on the traditional plan. One boy said to me: "Miss Hunt, I never knew before the difference between the work of a novelist and that of a dramatist. I did not understand the drama when we studied in the first of the year, but now I do." This is only one of many instances which might be cited.[1]

This instance well exemplifies the pedagogical advantages of dramatization. These are marked, yet we should not blind ourselves to the fact that work of this kind consumes much time. It is doubtful if a class should attempt more than one or two such tasks a year, if that many.

9. Writing

For compelling one to think a topic through there is nothing else equal to writing it up. One may read upon a topic, study it, discuss it, and even speak upon it, and yet find, when he comes to write it up, that there are serious gaps in his

[1] From Swift's *Learning and Doing*, p. 78. Published by the Bobbs-Merrill Company, Indianapolis.

knowledge in respect to both facts and organization. The writing forces him to face each fact in relation to all the rest and to separate the substance of knowledge from the halo of emotionalism.

Bacon placed the right value on writing when he said that, "Reading maketh the full man, speaking the ready man, and writing the exact man." A distinguished teacher who has written several books on educational subjects once said to the writer that he felt quite incompetent to teach a subject upon which he had not written, his knowledge seemed so loose and indefinite. With this feeling all who have written for publication can easily sympathize.

This value of writing for the scholar indicates its value for the pupil. Notebook work answers this purpose in part, but only in part. Whenever a significant topic has been studied and discussed, the expression of it in writing may well form the capstone. This is especially true for expository topics, which are the hardest to organize. Indeed, the question may be raised if work of this kind should not form the major work in composition in both the elementary and the secondary school. This would give the pupils something to write about, would center their attention on the

content rather than the form, and would make writing an integral part of all their work instead of a subject apart, as is now usually the case.

Occasionally a teacher may make use of writing as the basic mode of teaching a subject. One teacher of my acquaintance did this effectively with an eighth-grade class in American history. Instead of reciting upon the subject in the usual way, each member of the class wrote a history of the United States. The plan was frankly discussed at the beginning of the course, the pupils agreed to the attempt, and they entered upon their ambitious task with enthusiasm. The interest was at white heat throughout, the pupils read widely, seeking even original sources, and they produced books that compared favorably with the standard texts written for the elementary school. At the end of the course the books were bound and these are still the prized possessions of the authors, now grown men and women.

10. Class discussion

In discussing the means of enlisting the activity of pupils in the process of learning, we should not gain the impression that we must always go afield for special devices in order to achieve our goal. Granted that the subject-matter is signifi-

cant and that the pupils appreciate this significance, good teaching may be achieved without any special devices. Class discussion always has been, and always will be, a vital mode of pupil cooperation. All classwork should be a give-and-take experience. The good teacher is essentially a chairman or moderator. He guides the discussion of the pupils, often supplying needed information and points of view, but he does not monopolize the privilege of expression.

A typical instance of class discussion is found in the following extract[1] from Strayer's *Teaching Process* (p. 131):

In an eighth-grade class the children were discussing the panic of '73. One of the boys maintained that the causes of panics were, in general, the same, regardless of the activities of a few individuals occupying important positions in government or in the commercial world. His contention was mainly that it was unfair to charge a President or a political party with the distress occasioned by a panic, when in reality the cause was to be found in economic conditions over which neither President nor party had control. One of the girls in the class objected, and cited as proof the panic of '37, which she claimed was caused by President Jackson. The teacher

[1] Quoted by permission of The Macmillan Company, publishers.

could have settled this question immediately by an authoritative statement, which most classes of children would have accepted. In this case, however, the teacher encouraged the class to participate in the discussion. In the end the members of the class consulted textbooks and other more complete histories, and reached their own decision with comparatively little help from the teacher.

This quotation and the topic of class discussion in general raises the question of the meaning of the "socialized recitation." A great deal has been written on this subject, but very little said. Nothing new or distinctive appears to be meant. Apparently the only contribution of this fad is the reënforcement of the idea of coöperation in school work.

Coöperation has long held an important place in teaching. It was used by the sophists of Greece and the rhetoricians of Rome, and it has been taught in normal schools ever since their foundation nearly one hundred years ago. Practically all the examples of teaching mentioned in the preceding pages include it as an indispensable element. Think of the projects in field crops, the field work in community civics, the construction work in mediæval history, dramatization in literature, and dramatic expression in

history and civics. Most of these could not be carried on at all without coöperative effort.

Robbins [1] distinguishes three types of coöperative organization for conducting the socialized recitation. These are: (1) the informal group, (2) the institutionalized group, and (3) the self-directing group.

By the informal group nothing more is meant than the coöperative classwork that has always been used by successful teachers. Brannon cites what he calls a socialized lesson on the geography of China that falls under this head.

The lesson was begun by asking the pupils what they knew about China. The pupils immediately became interested because they knew about rice and silk, and they had seen Chinese people in Chicago and missionaries who had been in China. The pupils entered into the work with enthusiasm. They consulted all available material. Clippings from newspapers and periodicals, pictures, and products common to China were brought to the school and neatly arranged. Mention should be made of the raising of silkworms and the interest with which the pupils watched the larvæ increase in size until the cocoons were formed. Even a little silk was unwound from the cocoons. A few Chinese articles were made and

[1] Robbins, C. L., *The Socialized Recitation*, p. 29. Boston, 1920.

put into the room. The textbook was used merely as a guide and reference was made to it throughout the course. When the work was about completed, the children invited the other rooms to come in and see their exhibits. On the completion of the work, the pupils gave a Chinese tea, and the room was decorated with Chinese lanterns and other things common to China which the pupils had made. The pupils acted as if they were Chinese and many were dressed in Chinese costumes.[1]

By the institutionalized group is meant a group organized in imitation of some institution found in the world outside the school, such as the City Council, the Senate or House of Representatives, a court, or a dramatic club. The Athenian Assembly for the teaching of the Peloponnesian War and the American Congress for the teaching of American history, cited under the head of "dramatic expression," are examples of what is meant.

Group work of this kind is especially effective when the institution imitated comprises the topic studied, or is at least an integral part of it. But when this relationship does not exist, when, for example, the City Council organization is used for the study of reading, the procedure becomes questionable.

[1] *Education*, vol. 42, p. 271.

The self-directing group Robbins describes as "the formation of a type of coöperative society designed to meet the needs of the occasion, without conscious imitation of any form of organization in school or out." How this is to be applied to school work is not clear. Robbins's discussion is general and he cites no example.

Whitney [1] appears to mean by the socialized recitation a recitation conducted by the topical method, the topics having been carefully assigned beforehand by the teacher to individual pupils. After each recitation the other pupils are given the freedom of asking questions. The method is exemplified by the following stenographic report of a part of one recitation. Whitney gives complete stenographic reports of eight different recitations.

GEOGRAPHY — GRADE IV

INFORMATION LESSON

Outline

I. Peaks
   Pike's Peak
II. Volcanoes
   Volcanoes of the West
III. Trees
   Trees of the West
IV. Waterfalls

[1] Whitney, W. T., *The Socialized Recitation.* New York, 1915.

ENLISTING THE ACTIVITY OF PUPILS

TEACHER: Lillian, will you please tell us what you have learned about peaks and all that you know about Pike's Peak?

LILLIAN: A peak is the *higher* part of a mountain. Some peaks are bare and rocky and some are covered with snow. About ninety years ago a man named Major Pike tried to climb the mountain. It was so high that he couldn't climb to the top. He got discouraged and came down. He told the people that no one could climb or ever get to the top except a flying bird. Since then railroads have been invented, and they have a railroad that goes around the mountain until it gets to the top. When one stands on the top of this mountain and looks down, the village looks like a tiny speck. At the foot of the mountain there are strawberries; at the middle there are fir trees; at the top snow and ice. This shows the difference in the climate. The peak is three miles above sea level. When you are on top of the mountain sometimes a cloud comes and envelops you.

JOSEPH: Lillian, you said Major Pike tried to climb this mountain. We are talking about the peak.

MARY: Joseph, say moun*tain*, not moun*tin*. (Joseph repeats the word.)

ALMA: Lillian, you said that the railroads go around the mountain until they get to the top. It would be much better to say that the railroads go around and around until they *reach* the top.

LOUIS: Lillian, you said a peak is the higher part

of a mountain. I think it is the highest part of a mountain.

BARNEY: Where is Pike's Peak, in the eastern or western part of the United States?

LILLIAN: Pike's Peak is in the Western Highlands in the western part of the United States.

JOSEPH: I think a better way to locate Pike's Peak is to say that it is in the central part of Colorado.

LILLIAN: Are there any further corrections to my recitation? (No further corrections or contributions were given.) Rose, will you go on with the next topic?

It is hardly fair to call this a socialized recitation; it is a lesson in heckling. The extract is quoted, however, not for the purpose of criticizing it, but for the purpose of bringing into relief some pedagogical suggestions that apply to all coöperative school work.

The first of these suggestions has reference to the place of the teacher. In the minds of many teachers the primary difference between the ordinary recitation and the socialized recitation appears to be that in the former the teacher is in the front of the room, while in the latter he is in the back. In one the teacher has charge, in the other the pupils are given charge. But this difference appears to find no support in educational theory.

All who have written on the socialized recitation appear to agree that the teacher should always remain in charge.

The lack of the teacher's guiding hand is well indicated in the above extract. All the time devoted to discussion was wasted. I have personally observed several so-called socialized recitations in which the pupils were placed in charge, and in each case there was a sinful waste of precious school time.

The second suggestion has reference to the nature of a profitable class discussion. It will be noted that all the questions asked by the pupils in the above extract were either trivial or captious in nature, or pertained to secondary rather than to primary matters. It is not enough to say that such questions should be excluded. Both teacher and pupils should gain a positive conception of where their attention ought to be.

The attention of the pupils ought to be solely upon the subject-matter in hand. When Pike's Peak is under discussion, information about Pike's Peak is the only thing with which the pupils should be concerned. It should be the pupils' sole aim to gain full and accurate knowledge, and unless they had additional information to contribute, significant questions to ask, or errors

of fact to correct, they should hold their peace. This is not always easy, but it is one of the duties of the teacher to develop clearly in the minds of the pupils the principle involved.

Personal criticism and the correction of errors in English, unless this is the topic of the class, should be reserved solely to the teacher. For this there are two reasons. Corrections in secondary matters by the pupils of one another cause injured feelings and resentment. This is not only needless; it is reprehensible. The pupil in school is entitled to the same inviolateness of personality as the person outside of school. In life we receive corrections gracefully only from persons who are in authority to give them, or from friends with whom we have entered into a mutual agreement; never from our peers in general. Furthermore, pupils should be trained in school to respect one another's feelings, not to violate them.

Pedagogically, a more important reason why secondary criticisms should be reserved for the teacher is that when pupils have the privilege of making them their attention is shifted from the subject-matter under discussion to the slips that the one reciting may make. This defeats the very possibility of a profitable class discussion

and leads only into unrelated bypaths. Only by keeping the minds of the pupils primarily on the topic in hand can a positive attitude be cultivated and intellectual growth assured.

11. Reading and listening

Just as we closed our discussion of the means of exhibiting subject-matter with a consideration of the printed page and oral presentation, so we should close our discussion of the means of enlisting the activity of pupils with a consideration of reading and listening. These were our point of departure in considering the learning activities of pupils and they are also our logical point of return. All the various learning activities that we have considered may be looked upon as means of supplementing reading and listening, and while the importance of this supplementation cannot be questioned, it should be remembered that the latter are also activities that are involved in learning.

Our discussions of the objective and subjective means of vitalizing teaching come together at this point. Reading and listening are the subjective counterparts of the textbook and lecture, and what we said on these topics in Chapter II applies here also. Suffice it to say that the im-

portant place that reading and listening hold for the dissemination of information in life is indicative of the place that they should hold in school.

12. Subject-matter and method

Many teachers, and apparently a still larger percentage of supervisors, find it difficult to keep subject-matter and method in right relation. They are continually getting the cart before the horse. When the socialized recitation was the fad, socialization was the thing; now that the project method is the fad, project teaching is the thing. Arithmetic, geography, history, and reading merely become vehicles for carrying the prevailing fad in method. The fallacy needs only to be mentioned to be recognized. Subject-matter is always the thing and the particular method of presentation is always relative thereto.

When arithmetic is being taught, the question is not, How can I teach arithmetic by means of the socialized recitation? but, How can I teach arithmetic in vital relation to life and the pupils' own needs? When reading is being taught, the question is not, How can I teach reading by the project method? but, How can I get children to read both to themselves and to each other with interest? Once the primary problem is appre-

ciated, the question of method almost settles itself. What the teacher needs is resourcefulness. This is enhanced, not by the blanket use of one method, but by a knowledge of all the various means that have been worked out for the vitalization of teaching. From among these the teacher must select one, or a combination of several, that is applicable to the problem in hand. This need not be twice alike. Indeed, the principle of variety suggests that the teacher use different methods in different subjects and that he change his method from year to year in the same subject. If he has taught American history with the aid of dramatic expression one year, let him adopt the method of having each member of the class write a textbook another year. This will keep the teacher from falling into a rut and getting stale.

It should be noted also that a method which is successful in the hands of one teacher, need not be successful in the hands of another teacher, who may, nevertheless, be successful with a different method that the first teacher cannot use. Classes are much alike, but teachers differ, and this difference should be allowed room for expression. Care must be taken to distinguish basic principles from methods and devices for carrying

principles into effect. Methods and devices are many, but principles are few. In the third chapter of this monograph we have been concerned primarily with only one principle — the principle of response in connection with learning — while we have discussed more than a dozen methods of enlisting this response. A teacher who has succeeded in getting the spontaneous response of his pupils has in so far succeeded, no matter what method he has used.

Let us note, too, that, while principles are of universal or wide application, methods and devices are usually much restricted in their range of application. The various means of enlisting the activities of pupils are not equally applicable to all subjects. It is here that pedagogical fads, like the socialized recitation and the project method, do the most mischief. In the hands of unreflective enthusiasts, these become Procrustean beds into which all subjects must be fitted, regardless of the violence that may be done. There are many who are now attempting to apply the project method to all subjects, whether it is applicable or not, and the same was true but yesterday of the so-called socialized recitation.

Conceived in its original meaning, as the use of productive activities for teaching purposes,

the project is applicable in the elementary and secondary school only to vocational subjects, like agriculture, and to manual activities involving tools. Laboratory-work is applicable only to the natural sciences and, by grace, to home economics; dramatic expression, above the primary grades at least, finds little use outside of history and civics; while dramatization is used almost solely in literature. Even writing and class discussion, extensively as these may be used, vary widely in their applicability from subjects like spelling and mathematics to subjects like economics and philosophy.

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